We next compared SWBT's manual processing capacity against 1998 order activity in two ways. First all orders were distributed uniformly through 1998, and second, the 1998 service order volumes were assumed to be twice as high as the normalized distribution.

As shown on Exhibit VI – 5 given SWBT's current and forecast service representative work force, it would be able to handle twice the normalized service order volumes for every month in 1998.

Hiring, Training, Real Estate

In order to assess SWBT's ability to support the number of service representatives needed for Residential resale, Business Basic resale, Complex resale and UNE orders and resulting service orders, we reviewed SWBT's resource and contingency plans, including planning, coordination, and implementation of hiring, training, and real estate requirements in May 1997. We also interviewed six key individuals in the hiring, training, and real estate organizations who directly support the LSC, including the manager responsible for coordinating LSC hiring, training and real estate issues.

At the end of the first quarter of 1997, the LSC employed approximately 150 service representatives to support all manual orders. Expansion has since occurred and the LSC is now staffed at 559 representatives with 72 area managers and managers in place to direct those efforts.

To grow by 436 representatives from March 1997 to December 1997, the LSC had prepared a detailed training schedule that specified class sizes, rooms, and instructors for over 80% of the training classes from April through December 1997. The capacity for initial training was approximately 388 seats a day. Initial training for Residence and Business resale lasts 8 weeks, while initial UNE training lasts 12 weeks.

With respect to real estate, SWBT acquired its LSC facility - - The Alliance Gateway in North Fort Worth - - in March 1997. By July 1997 100 service representatives were available at the Alliance facility and today there are 410 service representatives and 52 area managers and managers who work at that location.

In addition to the Alliance location, SWBT has set aside two floors for LSC operation at One Bell Plaza in downtown Dallas. Here SWBT employs 176 service representatives and 5 area managers.

At both locations, SWBT has in place facilitates to accommodate immediate growth. At the Alliance facility there are 120 additional workstations that are pre-established and only require monitors to be fully functional. This can be accomplished in a two week period. Further, the Alliance facility contains 9,000 unused square feet of floor space. This can accommodate 60 positions and can be converted in a three month period.

At the downtown Dallas location there are 37 vacant positions (all available for immediate occupancy) and another 35 positions that are on loan to another department. These are expected to free up by the end up the first quarter of 1998.

Overall, SWBT can add 192 representatives with very little real estate planning and coordination and 60 more over a three month period for a total of 252 service representative positions. Given SWBT's plans to add 228 service representatives in 1998, the company would have the capability to hire an additional 24 representatives, if required, without significant real estate investment or delay.

Monitoring

SWBT has put in place several "formal" processes and collects data on a routine basis for the purpose of work force planning. While manual order processing capacity is not now an issue, it is important that SWBT have adequate procedures to predict order growth and respond accordingly. Even though SWBT has an inventory of vacant work stations and can use overtime to process order volumes that exceed capacity, ten to twelve weeks are required to train a new representative.

Our review found that in addition to the company forecast of resale, UNE and facilities interconnection activities, there are many other operational indicators used by LSC management in the short term and long term work force planning process.

First, weekly data reports on order volumes are prepared by order type, by state, by CLEC. These are analyzed for trends, observations or unusual order activity. Second, SWBT receives a trend analysis from its Automatic Call Distribution system which is used as a determinant for call load balancing. This technique, widely used in retail operations, has application to the LSC because of incoming calls from CLECs for assistance, billing inquiries, status reports and other information.

Thirdly, LSC managers are in constant contact with SWBT account managers concerning new CLECs and to gain market insights where CLECs have provided their own forecasts of order activity. Awareness of new CLECs is necessary because SWBT has organized its LSC with teams that service dedicated accounts. Further, LSC personnel are in constant contact regarding CLEC needs, projects and changes in work flow and procedures such as conversions from manual to EASE processing.

Lastly, LSC personnel maintain a presence on product teams such as resale and OSS to evaluate the operational impacts of policy changes.

Admittedly, at this stage of market development it is difficult to predict with certainty CLEC electronic and manual orders without full CLEC input. Nonetheless, SWBT has demonstrated its ability to ramp up quickly to establish workstations, train a pool of LSC service representatives and establish procedures to stay current with marketplace developments.

Q. How did you determine the scalability of SWBT's electronic systems?

To determine electronic system scalability, we reviewed the process by which capacity planning is performed for the pre-ordering and ordering systems.

Included in the review of electronic capacity planning procedures was an analysis of the level and extent of human and financial resources dedicated to identifying and resolving capacity constraints; the schedule for formal performance measurement and

demand forecasting; and the procedures for hardware acquisition, allocation, and implementation. To guide this review, a checklist was prepared which specifically addressed each of the areas identified above. This checklist was used as the basis for interviews conducted with capacity planning personnel. In addition to interviews, information in the form of formal documentation was collected and reviewed. The results of both interviews and documentation were summarized on the checklist.

Q. What are the results of your electronic systems scalability analysis?

In December 1997 SWBT processed 49,122 orders electronically. SWBT had sufficient electronic order capacity in December 1997 to handle this with capacity for LEX/EDI of 439,690 orders.

For 1998, when SWBT forecasted line loss is converted into electronic orders, SWBT will be processing approximately 52,000 orders on average each month. SWBT has more than sufficient electronic order capacity to handle this level of order activity. It is also clear that the high capacity of SWBT's electronic order systems can accommodate volumes at two times forecast of 104,000 orders per month or three times forecast of 156,000 orders per month.

While there is currently no foreseeable capacity shortfall for electronic ordering systems, the capacity planning procedures employed by SWBT for its electronic ordering systems lead us to conclude that any future capacity requirements would be identified and implemented before business operations were impacted.

EASE

SWBT has a capacity planning document for the shared Tandem platform. The key factors which form the basis for SWBT's capacity planning process are:

- Capacity and tuning is targeted to the peak day usage for the year
- Capacity and tuning is based on a 3 second response time for that peak day
- The Residence EASE negotiation is the baseline that is used in the capacity process
- Disk space requirements are evaluated on a case by case basis, in collaboration with the appropriate application design/development team

The process covers potential concerns with regard to capacity planning. For the Negotiation Driven Applications (which include EASE), Negotiations per Day, Processor Requirements, Target Response Time, Historical Performance Data, and Disk Storage are all considered, and scalability planning for each aspect is part of the review.

For the supporting Network which allows connectivity of the remote SWBT locations and CLECs, Network Capacity Planning Recommendations have been prepared to identify ways in which to improve the current methods for capacity planning. This document contains sections detailing:

- An analysis of the current tool set
- Identification of Critical Information
- Establishing Thresholds
- Defining Processes
- Long Term Recommendations
- Associated Costs

EDI, LEX, LASR

The Service Activation and Assurance Entity of the Information Services Department conducts capacity planning for the mid-range platforms upon which EDI, LEX, and LASR run. This group produces demand and capacity forecasts based on an extrapolation of CPU, memory, and storage utilization measures taken on a daily basis. The group also conducts hardware tuning to optimize performance of existing systems for known short-term capacity constraints (such constraints arise from scheduled maintenance or other overhead systems processes that are periodically run). Forecasted capacity constraints requiring additional hardware acquisition are forwarded to the Hardware Acquisition and Allocation personnel of the MVS Mainframe Group - the same group which conducts these functions for SORD.

SORD

The MVS Mainframe Group of the Information Services Department conducts capacity planning for the MVS Mainframe environment, the platform upon which SORD is run. Personnel in this group are divided among three functional roles: capacity and demand forecasting, hardware performance tuning, and hardware acquisition and allocation.

The capacity and demand forecasting personnel collect volume forecasts for both existing and new applications on the MVS Mainframe environment, create capacity forecasts, identify expected future capacity constraints, and produce future capacity requirements for the hardware performance tuning and hardware acquisition and allocation personnel.

The hardware performance tuning personnel track system utilization and tune existing hardware to mitigate known short-term capacity constraints. The team employs capacity requirements received from the capacity and demand forecasting personnel to tune the system for long-term optimization that does not require the allocation of additional hardware.

The hardware acquisition and allocation personnel utilize capacity requirements provided by the capacity and demand forecasting personnel to determine specific future hardware requirements. This team produces budgets for future hardware purchases, reviews hardware specifications and price quotes from suppliers, and purchases, tests, and implements chosen hardware.

DataGate and Verigate

Capacity planning responsibilities for DataGate and VeriGate reside within the Midrange Support Group at SWBT. The Midrange Support Group monitors systems on a daily basis, and identifies abnormal usage, charts growth trends, and reviews available capacity. The group works closely with DataGate and Verigate personnel to forecast capacity needs based on expected future demand, and to produce time

estimates for future upgrade requirements.

DataGate and Verigate personnel track transaction volumes and growth potential by communicating closely with both internal and external clients. When a new DataGate service is requested, a New Service Request form, indicating Estimated Transaction Volume among other things, is completed and distributed to all impacted systems groups. A formal estimate of transaction volume is also required when clients request usage of an existing DataGate service.

Once new capacity requirements have been identified, the Midrange Support Group works with the appropriate application group to decide which hardware platform and type of machine are required for the upgrade. The Midrange Support Group provides the operating system and platform knowledge, while the application group provides input on workload, production usage, and reliability requirements.

Once funding has been secured, the Midrange Support Group is responsible for acquiring and implementing the necessary hardware and/or software. Responsibility for implementing new capacity requirements is assigned to a specific project manager who selects, purchases, tests, and installs new hardware and software.

VII. ELECTRONIC SYSTEMS SUSTAINABILITY REVIEW

Q: What was the purpose of your review of systems sustainability? What was your approach?

Purpose

The purpose of our review was to determine if the proper controls are in place to maintain the current system and ensure continuity of processing activity.

Approach

We assessed the control environment using a tailored C&L system audit approach. Our activities included documenting internal controls as they relate to change management, security, and operations, specifically disaster recovery. The Record of Computer Controls (RCC) was used as a basis for documenting our understanding and evaluating the control environment (Exhibit VII-1).

Q: What were the results of your systems sustainability review?

Change Management:

At the time of our original review, SWBT had no consistent change management policies and procedures in place for DataGate, Verigate, LEX, LASR and EDI. After C&L discussions with management, SWBT implemented Vantive as the single change management process for transferring code into the production environment for all of its OSS access systems. The Vantive change management process consists of two parts, a software tool called Vantive used for storing and managing the transfer of code into the production environments, and the Vantive Core Team, the group responsible for managing the transfer of code and maintaining the integrity of the production environments.

Security

Access to SWBT systems is secured through unique user ID and passwords which are assigned to all users of OSS applications. Password naming conventions are in place to ensure that passwords are not easily guessed or "cracked". Each hardware platform has its own security facility which is managed by a security administration group. EASE system libraries, for example, are protected through a facility called System Guardian and Safeguard. EDI system libraries are protected through the use of RACF, a well known security control facility. Network access, including access through the LRAF (CLEC Remote Access Facility), is controlled through the use of firewalls, which monitor incoming and outgoing data to ensure that only authorized data is transmitted. Network Security is further enhanced through the use of SecureID cards, which provide a unique numeric password for every log-in attempt.

Operations (Disaster Recovery)

The EASE, EDI, LEX, LASR, Verigate, and DataGate support teams have developed Application Recovery Manuals for their respective applications, which include recovery teams and specific responsibilities for a Disaster Recovery scenario. Plans are tested on a regular basis by "walk-throughs" which are performed to ensure that all aspects of recovery have been addressed.

Additionally, SWBT has disaster recovery plans for its hardware platforms which are located in the data centers in St. Louis and Dallas. For certain applications such as DataGate, operations are mirrored at both of these locations, each of which has additional capacity to serve as a backup in case of a hardware failure. In addition, production applications such as EASE have development and testing platforms which are available as recovery sites in the event of a disaster.

VIII. TESTING PROCESS REVIEW

Q. What was the purpose of the testing process review?

The purpose of the testing process review was to evaluate whether EDI, LEX, LASR, DataGate, and Verigate, meet defined system requirements. This evaluation is based on the principle that quality processes employed during the testing phase of an information systems development effort (which emphasize formal documented testing of systems at various levels against specifically defined system requirements) result in a quality product.

Q. What was your approach to reviewing the testing process?

The approach to determine whether each of the systems met pre-defined requirements was separated into two portions. First, an assessment of functionality was obtained during the course of conducting capacity tests. When we conducted the capacity tests, the data sets employed included a distribution of all types of pre-order or order transactions required (depending on the system). The execution of this test would demonstrate at a high level the ability of the system to process the types of pre-order or order transactions required of the system

The second portion of the approach focused on conducting a review of the testing processes employed during the development of these systems. The testing process review was performed using SQA2000, C&L's proprietary methodology for systems quality assurance. The Testing Process Review checklist of the SQA2000 methodology was used to guide the evaluation of the systems development testing processes (Exhibit VIII-1). The evaluation was conducted through detailed interviews (guided by the checklist) with development project managers for each system, as well as a review of testing documentation. Results from both interviews and documentation were summarized in the form of answers to specific questions listed on the checklist.

SQA2000, C&L's proprietary software quality assurance methodology, provides a structured process for analyzing and assessing the risks of a systems development effort. The methodology was designed to support a variety of standards for software quality assurance, such as those specified by the International Standards Organization (ISO), the American National Standards Institute (ANSI), and the Institute of Electric and Electronic Engineers (IEEE).

Q. What were the results of the testing process review?

<u>LEX/LASR</u>

The Testing Process Review determined that development testing of LEX and LASR followed generally accepted guidelines of a quality Information Technology testing process. The development project manager for LEX and LASR had a documented testing strategy, plans, and material; a formal process for producing and conducting unit, integration, and system tests; a controlled mechanism for preparing and monitoring the testing environment; and a formal procedure for logging and tracking errors or issues that arose from testing.

The functionality assessment obtained as a result of the capacity tests indicated that all order types included in the data set (which was constructed to meet forecasted order demand) were processed correctly by these systems. As a result of these tests, and the testing procedures employed during systems development, we can conclude that LEX and LASR meet defined system functionality requirements.

EDI

The Testing Process Review for EDI determined that testing processes similar to those of LEX and LASR were employed to test defined system functionality requirements. However, no documentation on test instruments, execution, or results was maintained. Carrier-to-carrier testing of the EDI interface with a major long-distance provider has been completed, and records of test results and error logs (as well as formal communications from the carrier) maintained by SWBT indicate that the EDI interface meets defined system functionality requirements. End-to-end carrier testing via the EDI interface is still being conducted.

As with LEX and LASR, results from the capacity tests conducted for EDI indicate that all order types in the test data set were processed. These results, in conjunction with those of the carrier-to-carrier tests for the EDI interface, lead us to conclude that EDI meets defined system functionality requirements.

DataGate

Discussions with the DataGate development team indicate that system development and testing were based on requirements received from CLECs rather than a formal testing methodology. Additionally, DataGate conducted carrier-to-carrier system readiness testing with a major long-distance provider who is currently using the system to process live pre-order transactions. Communications received by SWBT from this carrier, as well as historical production data maintained by SWBT, indicate that DataGate meets defined system functionality requirements.

Results from the capacity tests indicated that all pre-order transactions in the test data set were processed by DataGate. Based on these results, as well as those of the carrier-to-carrier testing and historical production data, we can conclude that DataGate meets defined system functionality requirements.

Verigate

The testing process review determined that the Verigate development effort followed a formal development methodology modeled after that of a well-known professional services firm. Although testing was not consistently performed by an independent test team, test instruments and data sets were designed against defined system requirements, tests were executed in a specified and controlled manner, and test results and errors were recorded and appropriately addressed.

The results of the capacity test indicate that all pre-order transactions in the test data set were processed by Verigate. Based on these results, and those of the testing process review, we can conclude that Verigate meets defined system functionality requirements.

Q. Does this conclude your testimony?

Yes it does.

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Section I
Qualifications

<no Exhibits in this section>

Section II
Purpose of testimony

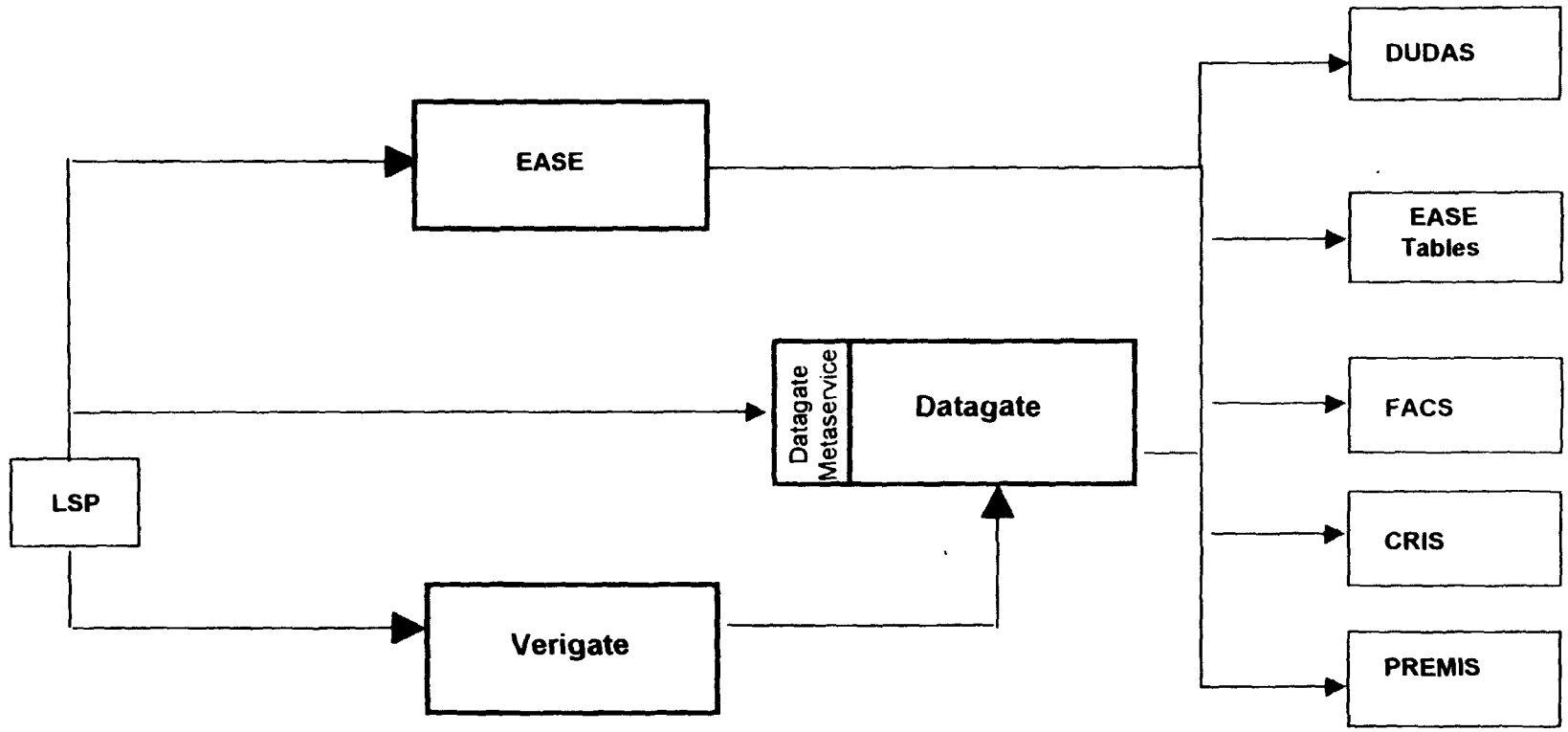
<no Exhibits in this section>

Section III
Overview of current situation and findings

<no Exhibits in this section>

Section IV
Pre-order capacity: Resale and UNE

SWBT Pre-Ordering Process Flow - Three systems for processing pre-order transactions: EASE, DataGate, Verigate



Electronic capacity testing results

	Transactions/Hour	Transactions/Day	Orders/Hour	Orders/Day	Orders/Month
Datagate	13,272	132,720	2,824	28,240	592,970
Verigate	11,680	116,800	2,485	24,850	521,826
Total	24,952	249,520	5,309	53,090	1,114,796

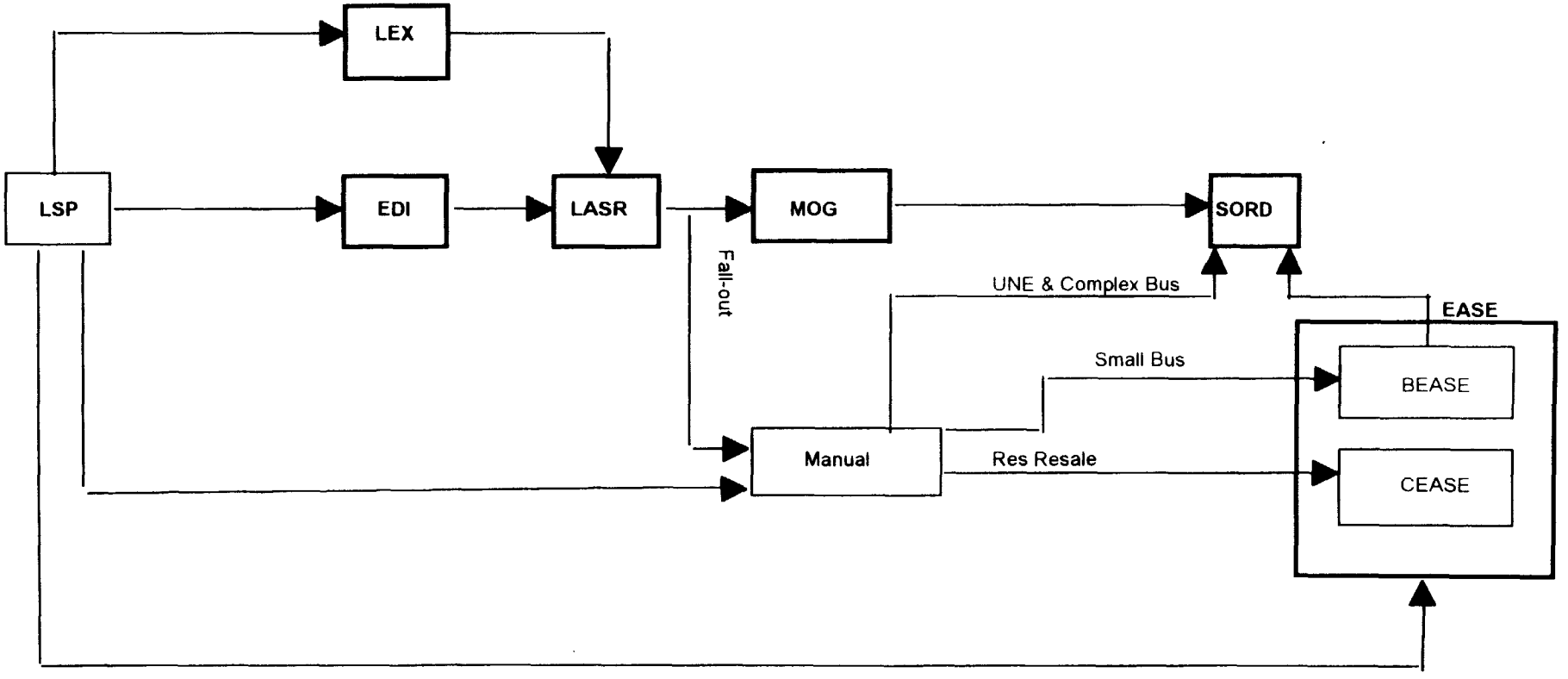
Capacity numbers are based upon use of 10 hours/day and 21 days/month.
For Datagate and Verigate, order conversion factor = 6.835 pre-order transactions per order.

EASE Capacity Calculation

Calculation/Figure	Value	Source
Negotiations on peak day 1997	109,000	From SBC reports
Maximum target CPU utilization	80%	Based on historical data
CPU second per negotiation	12.437	Weigted average based on 1997 peak hour data
Seconds in an hour	3,600	Known value
Maximum CPU utilization per hour	2,880	Maximum target CPU utilization x seconds in an hour
Average maximum negotiations per CPU	232	Maximum CPU utilization per hour x seconds per negotiation
Number of CPU's:	78	Known value as of January 14, 1998
Max Negotiations / hour	**18,046**	Maximum negotiations per hour per CPU x CPUs
Max Negotiations / day	**180,460**	Max negotiations / hour x 10 hours
Negotiations on peak day 1998	130,800	20% year end 1998 growth over peak in 1997 of 109,000
Available year end 1998 negotiation capacity per day	49,660	Max negotiations / day - negotiations on peak day 199
Available year end 1998 monthly negotiation capacity	1,042,860	Available year end 1998 negotiation capacity per day x 21 days per month

Section V
Ordering capacity

SWBT Ordering Process Flow - Six systems involved in processing orders



Description of the electronic ordering process

Resale orders may be processed by any of the 3 front-end systems (EASE, LEX, or EDI). Resale orders submitted via EASE, either by an LSP or SWBT representatives, are immediately processed and stored as service orders directly into SORD. UNE orders may only be processed by the LEX and EDI front-end systems.

Orders submitted via either LEX or EDI (both available only to LSPs) may be received continuously, but are stored for periodic batch processing on the appropriate front-end systems (e.g. orders received through LEX are stored on the LEX system, orders received through EDI are stored on the EDI system). At a pre-determined time, a JCL (Job Control Language) is begun which guides the serial execution of the EDI, LEX, LASR, MOG, and SORD processes. (Currently, the JCL is set to initiate at 7:00 AM, 9:00 AM, 11:00 AM, and 3:00 PM. Once the LSPs start submitting live customer orders, these processes will be initiated at 7:00 AM, 9:00 AM, 11:00 AM, 3:00 PM, 7:00 PM, and 10:00 PM. Other than scheduled system down-time from 6:00 AM to 11:00 AM on Sundays, these system will be operational 24 hours per day).

The EDI process edits the contents of the EDI order input file for syntax, converts the orders to LASR format, and stores them in the LASR input file. Any syntax errors identified during this process are marked, and the orders are sent back to the originating LSPs. At the conclusion of the EDI process, the LEX Order process is initiated.

The LEX process edits the contents of the LEX order input file for syntax, converts the orders to LASR format, and stores the orders in the same LASR input file used by the EDI process. Any syntax errors identified during this process are marked, and the orders are sent back to the originating LSPs. At the conclusion of the LEX process, the LASR Order process is initiated.

Description of the electronic ordering process (contd.)

The LASR process performs logical edit checks on the orders contained in the LASR input file (which contains orders received from both LEX and EDI), in some cases referencing the CRIS system to verify data, and stores these orders in either a MOG input file or an LSC output file. orders stored in the LSC output file are processed by SWBT representatives who enter the orders into SORD via EASE or, in the case of Complex Business orders, directly into SORD. orders processed by the LSC do not incur any subsequent electronic processing. (Currently, only Residential and Simple Business Conversion, Disconnect, Suspend, and Restore Resale orders may be processed by MOG; SWBT plans to increase the ability of MOG to handle all order types. Any logical errors identified during this process are marked, and the orders are sent back to the originating LSPs through the respective originating front-end system (either LEX or EDI). At the conclusion of the LASR process, the MOG Order process is initiated.

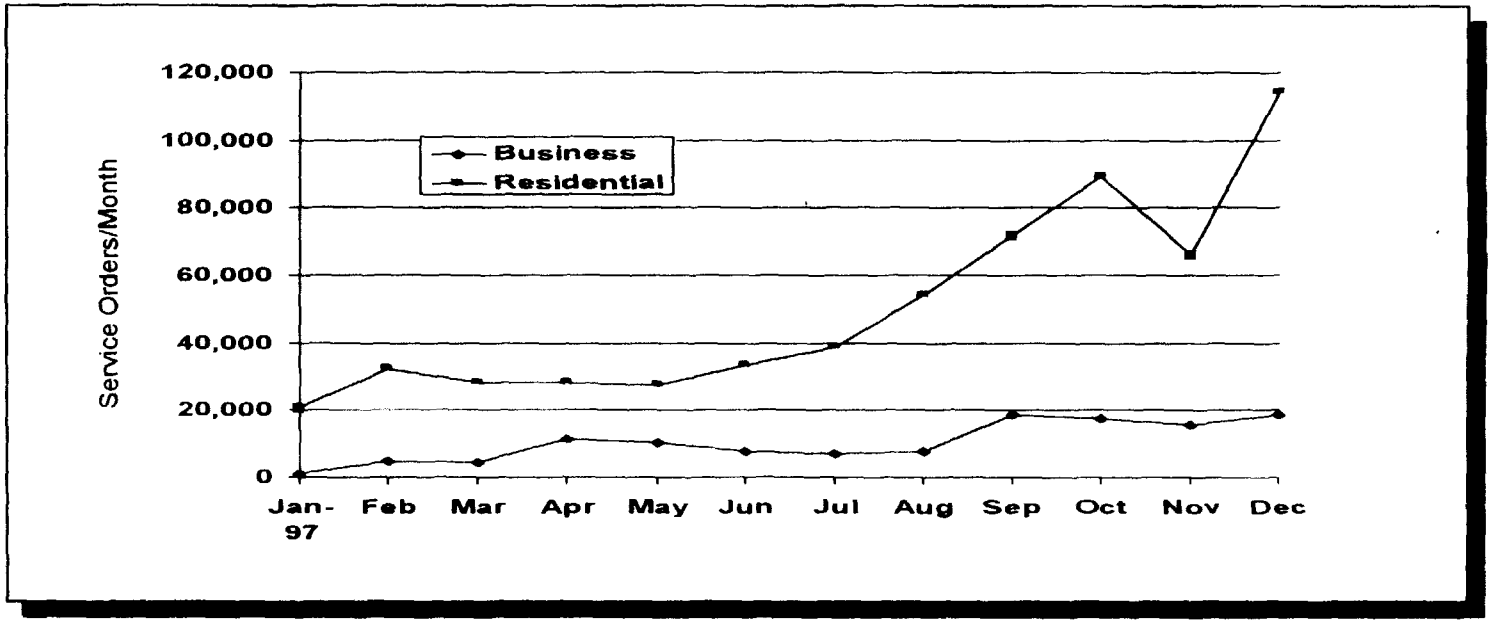
The MOG process converts the orders contained in the MOG input file into service orders and stores these in SORD. For all order types except Conversions, a single order will result in a single service order. For Conversion orders, a single order will result in two service orders (specifically, one Disconnect and one New). At the conclusion of the MOG process, the SORD process is initiated.

The SORD process produces Firm Order Confirmation (FOC) notices for each of the service orders created by MOG, and stores these in a LASR FOC input file. At the conclusion of the SORD process, the LASR FOC process is initiated.

The LASR FOC process reads the contents of the LASR FOC input file and converts these to either LEX or EDI FOC format, and saves these in either a LEX or EDI FOC input file, depending upon the origin of the associated order. At the conclusion of the LASR FOC process, the LEX FOC process is initiated.

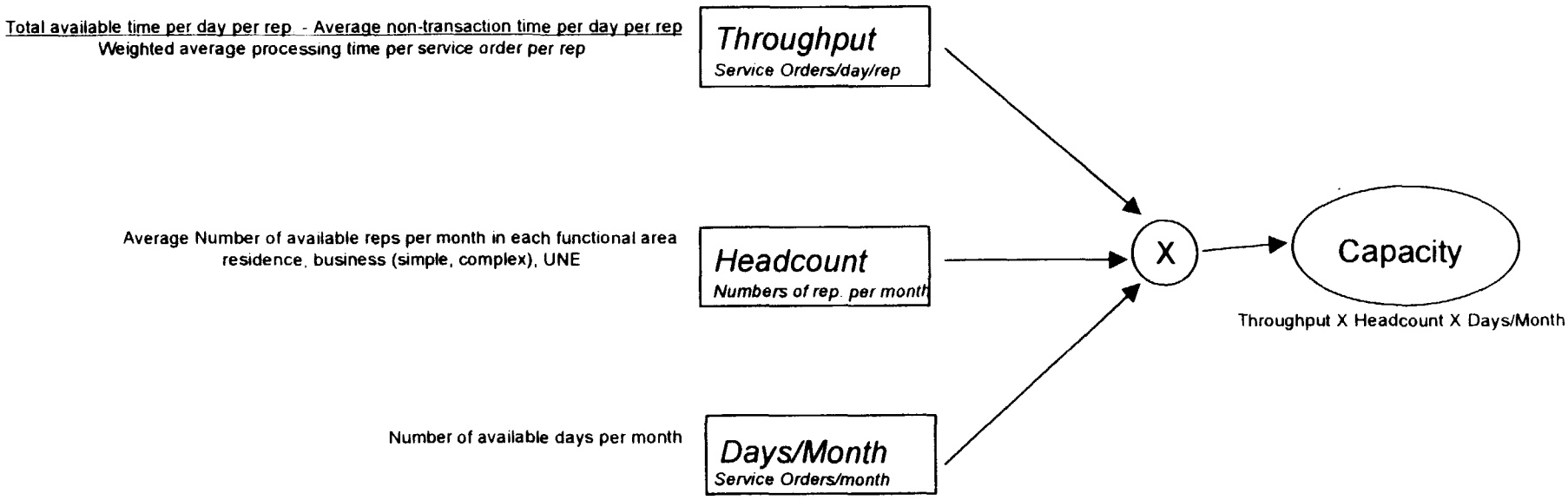
The LEX FOC process reads the contents of the LEX FOC input file and sends these to originating LSPs via LEX. At the conclusion of the LEX FOC process, the EDI FOC process is initiated, which reads the contents of the EDI FOC input file and sends these to originating LSPs via EDI.

SWBT Resale service orders, January - December 1997: Business and Residential



	Jan '97	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Business	1,196	4,803	4,547	11,458	10,255	7,841	6,841	7,543	18,829	17,663	15,672	18,541
Residence	20,837	32,311	28,234	28,324	27,529	33,447	38,946	54,127	72,039	89,343	66,387	114,124
Totals:	22,033	37,114	32,781	39,782	37,784	41,288	45,787	61,670	90,868	107,006	82,059	132,665

Procedure for computing manual capacity



Throughput is the average number of service orders that can be processed in a day by a service representative